

(12) UK Patent Application (19) GB (11) 2 259 291 (13) A  
(43) Date of A publication 10.03.1993

(21) Application No 9218909.1

(22) Date of filing 07.09.1992

(30) Priority data

(31) 9119118

(32) 07.09.1991

(33) GB

(71) Applicant

Ultramark Adhesive Products Limited

(Incorporated in the United Kingdom)

38 Port Royal Avenue, Lune Industrial Estate,  
Lancaster, LA1 5QP, United Kingdom

(72) Inventor

Reginald Robin Lowman

(74) Agent and/or Address for Service

Roystons

Tower Building, Water Street, Liverpool, L3 1BA,  
United Kingdom

(51) INT CL<sup>5</sup>

G09F 3/02

(52) UK CL (Edition L)

B8F FBG

U1S S1808

(56) Documents cited

GB 1585903 A

US 4444839 A

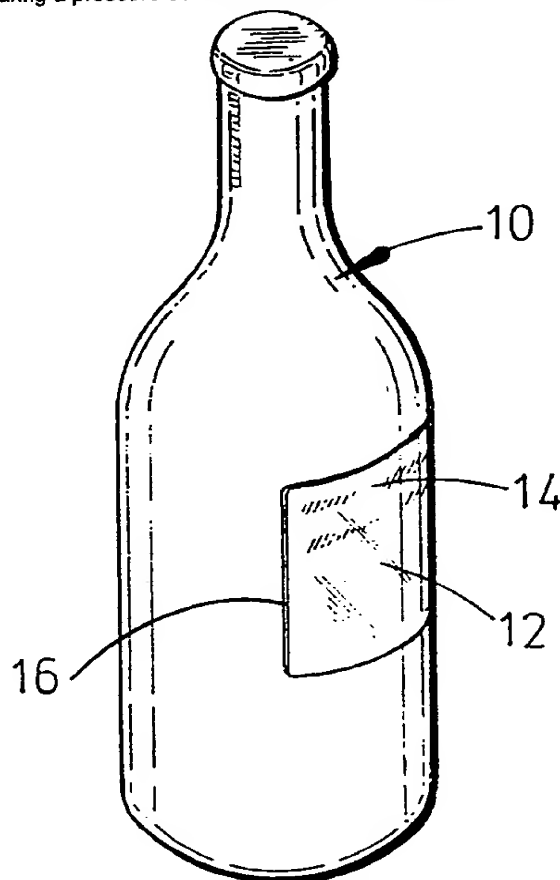
(58) Field of search

UK CL (Edition K) B8F FBG

INT CL<sup>5</sup> G09F 3/02 3/10

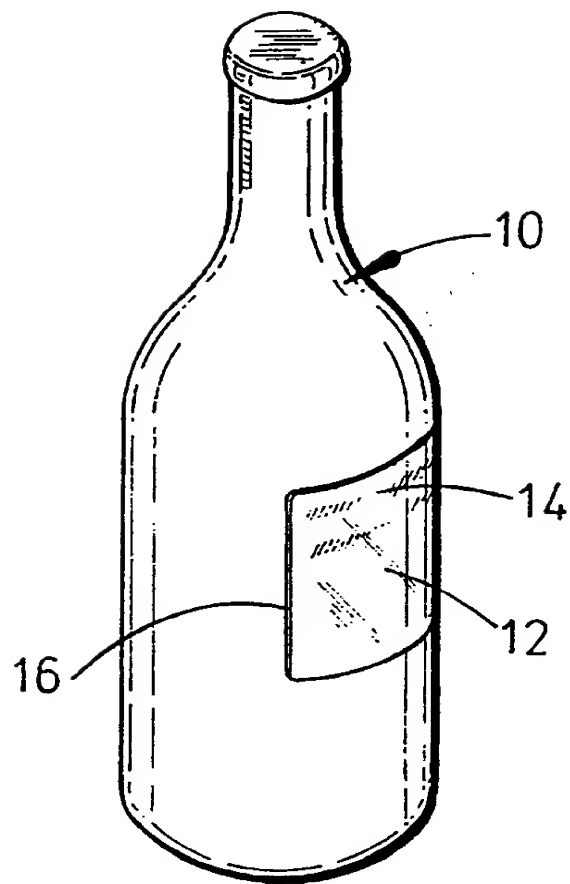
(54) Hot-water-soluble labels

(57) A label 12 for a reusable container 10 comprises a water-soluble printable layer 14, consisting of either a synthetic material or of coated paper, bearing a pressure-sensitive water-soluble adhesive 16, whereby the label is insoluble in cold water but soluble in hot water.



At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

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Title: Labels

#### DESCRIPTION

This invention concerns labels and, in particular, concerns labels for use on reusable  
5 containers, such as glass or plastics bottles.

Labels for glass containers are often made of paper and fixed thereon using a starch based adhesive. Before such a container can be reused the label has to be removed and this is achieved by means of steam. That  
10 is a costly process and both time and expense could be saved if the labels on reusable containers were easier to remove.

Conversely, a label applied to a reusable container should not be so easy to remove that it comes  
15 off under normal use conditions for the container.

An object of this invention is to provide a label, particularly for a reusable container, that can be readily removed for the container to be reused but which can remain on the container during normal use of  
20 the container.

According to the invention there is provided a label, particularly for a reusable container, comprising a printable sheet, such as of paper or preferably of a water-soluble film or layer having a water-soluble

adhesive coating for attaching the label to the container.

The water-soluble film or layer for the label preferably has one or more of the following characteristics:

1. The film or layer should be substantially insoluble in cold water;

2. The film should be relatively soluble in hot water, say at 60°C or above;

10 3. The film should be printable to allow label information to be applied thereto by any suitable printing process.

It is believed that films made from synthetic materials, such as polyvinyl alcohol may be suitable for use in the invention, a typical example being AQUAPHAN (RTM) as marketed by Hoechst UK Limited.

When the label comprises paper, it may also be provided with a coating of a water-soluble film as hereinabove defined.

20 The water-soluble adhesive coating for the label of the invention is preferably pressure sensitive for ease of application of the label to its container.

It is believed that water-soluble adhesives based on synthetic materials such as acrylic polymers may be suitable for use in the invention, a typical example being sold under the trade name ALCREGEL 7164. To aid

application of the label to the container it is preferred that the adhesive be pressure sensitive.

In accordance with the invention, a high quality label may be produced that is resistant to normal usage of a container, such as a beer bottle, but which can be easily removed in hot water. In fact, it is believed that the use of a polymer film or layer in labels of the invention may due to its enhanced printing characteristic compared to a paper label result in better print definition on the label.

Once a container bearing a label in accordance with the invention has been used, the container may be dipped in hot water say at around 60°C or higher, which will dissolve the label including its adhesive leaving the container ready for reuse. It may, of course, be that water of even lower temperatures may be used to remove the label provided that there is a sufficient margin between temperatures and those at which the container may be stored transported and ultimately used by a consumer. For example, care should be taken particularly in selecting label materials for containers to be used outdoors, where adverse environmental conditions are possible, and indoors in areas such as bathrooms and kitchens where water and especially steam may cause problems.

The invention will now be further described by

way of example only, with reference to the accompanying drawings, which shows a container and label.

Referring to the accompanying drawing, a container 10, here shown as a glass bottle, although jars and other types of container may also be considered as well as containers of other materials, such as of plastics, has a label 12 adhered thereto. The label 12 comprises a film or layer 14 of synthetic material, typically of water-soluble polyvinyl alcohol, for example as sold under the trade name AQUAPHAN<sup>(R<sub>TM</sub>)</sup> and a layer 16 of pressure sensitive adhesive, typically a water-soluble acrylic polymer adhesive, for example as sold under the trade name ALGREGEL 7164, whereby the label is affixed to the bottle. The label has typical information printed on its surface.

The label 12 is water-soluble only at higher temperatures, typically at 60°C and above, so that under normal conditions, the label remains intact but can be easily removed by immersing the container in hot water where the label, including its adhesive, dissolve. The container is then available for reuse with steam cleaning, which previously had to be used also for removing paper labels adhered with starch based adhesives, being only required for sterilisation of the container.

## CLAIMS

1. A label for a reusable container comprising a printable sheet having a water-soluble adhesive coating for attaching the label to the container, wherein the printable sheet is substantially insoluble in cold water and substantially soluble in hot water.
2. A label as claimed in claim 1, wherein the printable sheet is substantially soluble in water at 60°C or above.
3. A label as claimed in claim 1 or 2, wherein the printable sheet is of paper.
4. A label as claimed in claim 3, wherein the sheet of paper has a water-soluble coating.
5. A label as in claim 4, wherein the water-soluble coating is of synthetic material.
6. A label as claimed in claim 5, wherein the synthetic material is of polyvinyl alcohol.
7. A label as claimed in claim 1 or 2, wherein the printable sheet is of synthetic material.
8. A label as claimed in claim 7, wherein the synthetic material is polyvinyl alcohol.
9. A label is claimed in any one of claims 1 to 8, wherein the water-soluble adhesive is based on synthetic materials.
10. A label as claimed in claim 9, wherein the water-

soluble adhesive is based on acrylic polymers.

11. A label as claimed in any one of claims 1 to 10, wherein the adhesive is pressure-sensitive.

12. A label for a reusable container substantially as  
5 hereinbefore described with reference to and as  
illustrated in the accompanying drawing.



**Patents Act 1977**  
**Examiner's report to the Comptroller and r**  
**Section 17 (The Search Report)**

Application number

GB 9218909.1

**Relevant Technical fields**

(i) UK Cl (Edition K) B8F (FBG)

(ii) Int Cl (Edition 5) G09F 3/02, 3/10

**Databases (see over)**

(i) UK Patent Office

(ii)

Search Examiner

D J MARSH

Date of Search

9 NOVEMBER 1992

Documents considered relevant following a search in respect of claims

1 TO 12

Category (see over)	Identity of document and relevant passages	Relevant to claim(s)
X	GB 1585903 (DUDZIK) - see page 1 lines 86 to 96 and page 2, lines 1 to 5	1-4, 11
X	US 4444839 (DUDZIK) - see column 1, lines 40 to 55	1-4, 7-9

101

Category	Identity of document and relevant passages	Relevant to claim(s)

### Categories of documents

**X:** Document indicating lack of novelty or of inventive step.

**Y:** Document indicating lack of inventive step if combined with one or more other documents of the same category.

**A:** Document indicating technological background and/or state of the art.

**P:** Document published on or after the declared priority date but before the filing date of the present application.

**E:** Patent document published on or after, but with priority date earlier than, the filing date of the present application.

**&:** Member of the same patent family, corresponding document.

**Databases:** The UK Patent Office database comprises classified collections of GB, EP, WO and US patent specifications as outlined periodically in the Official Journal (Patents). The on-line databases considered for search are also listed periodically in the Official Journal (Patents).